

REMARKS

By this Amendment, claim 1 has been amended. Accordingly, claims 1, 7 and 8 are pending in the present application.

The objection to the drawings is noted. In response, Applicants have amended the specification to correspond to the reference characters used in the drawings. Accordingly, reconsideration and withdrawal of this objection is respectfully requested.

Claims 1 and 7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2004/0209136 to Ren et al. in view of U.S. Patent Publication No. 2004/0001991 to Kinkelaar et al. Claim 8 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Ren et al. and Kinkelaar et al., and further in view of U.S. Patent No. 6,808,838 to Wilson. Applicants respectfully traverse these rejections.

Among the limitations of independent claim 1 which are neither taught nor suggested in the prior art of record is a solid electrolyte fuel cell having an evaporation inhibiting layer that is made of a woven or unwoven fabric containing fibrous cellulose, and having "a volume expansion coefficient of 4.5 or less and initiating water migration from the evaporation inhibiting layer to the cathode at a temperature of 80°C or lower."

As described in the present specification beginning at page 5, line 21, water generated in the cathode becomes vapor. External emission of vapor from the cathode is inhibited by the evaporation inhibiting layer disposed on the cathode side, which effectively allows vapor to migrate from the cathode to the anode via the electrolyte membrane. If liquid water is present in the cathode, the pores in the evaporation inhibiting layer are filled by water. As a result, supply of an oxidant into the cathode is inhibited and water content in the fuel cell is not retained at a desired value.

Neither Ren et al., Kinkelaar et al., and/or Wilson, teach or suggest an evaporation inhibiting layer having a volume expansion coefficient of 4.5 or less and initiating water migration

from the evaporation inhibiting layer to the cathode at a temperature of 80°C or lower, as specifically required by independent claim 1.

Ren recirculates water generated in the cathode inside the fuel cell. In Ren, the cathode filter 290 serves to filter air impurities (Ren at [0058]), and the microporous layer 244 blocks the flow of liquid produced on the cathode (Ren at [0052]-[0057]). The microporous layer of Ren is disposed inside the cathode current collector. In contrast, the evaporation inhibiting layer defined in claim 1 is disposed outside the cathode current collector and is different than the microporous layer 244 of Ren.

Kinkelaar et al. does not remedy any of the deficiencies of Ren. In paragraph [0114], Kinkelaar et al. describes that the “capillary structure 30 collects the water produced at the cathode°... for recycling with the liquid fuel supply.” In other words, Kinkelaar et al. recirculates water generated in the cathode, and carries the water through the external flow path to the anode. This is very different than the present invention as well as very different than the device of Ren. Accordingly, it is respectfully submitted that one of skill in the art would not combine the teachings of Ren and Kinkelaar et al. because the operation of the disclosed devices are very different.

In addition, Wilson simply does not teach or suggest an evaporation inhibiting layer as specifically required by independent claim 1. None of the references of record recognize the benefit of using a material having such a volume expansion coefficient. Therefore, even if one were to combine the teachings of these references, one would not arrive at the present invention as defined in independent claim 1. Accordingly, it is respectfully submitted that independent claim 1 patentably distinguishes over the prior art of record..

Claims 7 and 8 depend either directly or indirectly from independent claim 1 and include all of the limitations found therein. Each of these dependent claims include additional limitations which, in combination with the limitations of the claims from which they depend, are neither disclosed nor suggested in the art of record. Accordingly, claims 7 and 8 are likewise patentable.

In view of the foregoing, favorable consideration of the amendments to claim 1, and allowance of the present application with claims 1, 7 and 8 is respectfully and earnestly solicited.

Dated: April 28, 2009

Respectfully submitted,

Electronic signature: /Richard LaCava/
Richard LaCava

Registration No.: 41,135
DICKSTEIN SHAPIRO LLP
1177 Avenue of the Americas
New York, New York 10036-2714
(212) 277-6500
Attorney for Applicant